

Page 5, line 35, delete "In the drawings:".

Page 6, before the first line, insert

--BRIEF DESCRIPTION OF THE DRAWINGS--

Fig. 1 is a diagrammatical drawing of a prior art piezoceramic multilayer actuator.

Fig. 2 is an enlarged detail of an external electrode according to the prior art.

Fig. 3 shows a typical crack path after 10^6 loading cycles in the ceramic material under an external electrode according to the prior art.--

Page 6, after line 17, insert --DETAILED DESCRIPTION--.

Page 13, before claim 1, insert --It is claimed:--.

IN THE ABSTRACT

Please replace the abstract with the attached abstract.

IN THE CLAIMS

Claims 1-26 (canceled)

27. (Previously added) External electrodes on piezoceramic multilayer actuators, composed of a layer of a basic metallization applied to the ceramic material of the surface of a actuator, to which metallization there is joined by means of a joining layer a reinforcing layer to which a connecting wire is soldered, wherein the layer of basic metallization is structured by discontinuities or recesses.

28. (Previously added) External electrodes according to Claim 27, wherein the structure of the basic metallization is composed of a printed pattern of a suitable termination paste, which printed pattern has been produced by means of a printing method.

29. (Previously added) External electrodes according to Claim 27, wherein the structure of the basic metallization is formed by a mechanical, chemical or electrochemical removal in a layer of the basic metallization applied over the entire area.

30. (Previously added) External electrodes according to Claim 28, wherein the basic metallization is composed of a suitable termination paste that has the composition Ag_xPd_y , where $x + y = 1$ and $1 > x > 0$, but preferably $1 > x > 0.7$.

31. (Previously added) External electrodes according to Claim 27, wherein the structure of the basic metallization is formed by a porous electrochemical deposition of a suitable metallic material.

32. (Previously added) External electrodes according to Claim 31, wherein the metallic material is nickel.

33. (Previously added) External electrodes according to Claim 27, wherein the structure of the basic metallization is composed of areas disposed over the surface of the actuator and in that the areas are at least large enough for respective adjacent internal electrodes to be joined together by at least one area.

34. (Previously added) External electrode according to Claim 27, wherein the structure of the basic metallization is composed of dots, in that the diameter of the dots is equal to 0.05 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the dots is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that a straight line extending through the dots encloses an angle with respect to the path of the internal electrodes that is approximately between 10 degrees and 80 degrees, preferably between 15 degrees and 40 degrees.

35. (Previously added) External electrode according to Claim 34, wherein the diameter of and the spacing between the dots are equal to two to three times the thickness of the ceramic layer of the actuator.

36. (Previously added) External electrode according to Claim 27, wherein the structure of the basic metallization is composed of parallel lines, in that the width of the lines is equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the lines is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that the lines enclose an angle with respect to the path of the internal electrodes that is approximately between 10 to 80 degrees, preferably between 15 degrees to 40 degrees.

37. (Previously added) External electrodes according to Claim 36, wherein the width of and the spacing between the lines are equal to 2 to 3 times the thickness of the ceramic layers of the actuator.

38. (Previously added) External electrodes according to Claim 27, wherein the structure of the basic metallization is composed of lines disposed in grid-type manner, in that the width of the lines is equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, in that the minimum distance between the lines is likewise equal to 0.5 to 5 times the thickness of the ceramic layers of the actuator, and in that the lines of the grid are at a random angle with respect to one another and to the path of the internal electrodes.

39. (Previously added) External electrodes according to Claim 38, wherein the width of and the spacing between the lines are equal to 2 to 3 times the thickness of the ceramic layers of the actuator.

41. (Previously added) External electrodes according to Claim 40, wherein the solder is a tin-containing material, preferably SnAg₄ or SnCu_{0.7}.

42. (Previously added) External electrodes according to Claim 27, wherein the joining layer between basic metallization and reinforcing layer is an electrically conductive adhesive.

43. (Previously added) Method for producing external electrodes according to Claim 27, wherein the layer of the basic metallization is structured by discontinuities and recesses.

44. (Previously added) Method according to Claim 43, wherein the structure of the basic metallization is produced as a printed pattern by means of a printing method using a suitable termination paste.

46. (Previously added) Method according to Claim 43, wherein the basic metallization is produced from a suitable termination paste that has the composition Ag_xPd_y , where $x + y = 1$ and $1 > x > 0$, but preferably $1 > x > 0.7$.

47. (Previously added) Method according to Claim 43, wherein the structure of the basic metallization is formed by a porous electrochemical deposition of a suitable metallic material.

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

The specification has been amended to include sections as set forth in item 3 of the office action. Changes to the specification have also been made to make some minor grammatical changes. It is believed these changes render the requirement for a substitute specification moot. No new matter has been added.

New drawings 1-3 with the Examiner's proposed changes are submitted herewith.